

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

TITLE:

GUTTER RETAINING SYSTEM

INVENTOR:

KARL J. GRAMLING

BACKGROUND OF THE INVENTION

This is a continuation in part application claiming priority to U.S. Patent Application Serial No. 10/623,222 filed July 21, 2003.

1. Field of The Invention

Applicant's invention relates to a gutter retaining system for affixing a gutter to a building. More specifically, the present invention relates to an interlocking system that incorporates a clip for affixing gutters to a retaining member on the eaves of a building that obviates the need for using nails or screws within the gutter itself, and to the structure installed according to the system, both preassembly and as assembled.

2. Background Information

For years property owners have struggled with the destructive effects of water on their buildings. However, by channeling the water away from the structure, building owners can reduce the damage caused by water. This can be accomplished through the use of a gutter system. Gutters are troughs that channel water from the eaves, being the horizontal lower edge of a roof, of a building to the downspouts. The downspouts are essentially drainpipes that drain water from the roof gutters. Gutters are a critical component of a building because they prevent moisture damage by channeling water off the roof and away from the foundation. But any damaged lengths of gutter or drain pipe caused by wear, improper

1 installation, or sagging can cause leaks which can result in water damage to the
2 building.

3
4
5 Traditionally, gutters have been attached by nailing the gutter directly to the
6 building. Building contractors typically used a spike and ferrule system, in which a
7 narrow, tubular spacer, the ferrule, is placed between the front face of a gutter and
8 its rear face, ensuring that the front face remains at a uniform distance from the rear
9 face. A spike or long nail, is then punched through the outside of the front face of
10 the gutter, through the ferrule, through the back face of the gutter, and into the wall
11 or fascia of the structure.

12 Using the nail in this manner ruins the finished appearance of the gutter. In
13 addition, once the gutter is installed it ends up with its front face tilted forward
14 towards the ground. Once this occurs the captured rainwater and other material
15 tends to pool along the outer edge of the gutter. The weight of this material creates a
16 moment at the point of insertion of the nail, resulting in a force pulling the gutter
17 away from the wall. Further, while this manner of installation has the effect (at least
18 temporarily) of securing the gutter in place, it does not ensure that water will not run
19 behind the gutter. In any structure where water is allowed to run and collect behind
20 the gutter, eventually the integrity of the wood begins to weaken and the moment
21 forces referred to above slowly pull the nail and the gutter away from the building. In

1 periods of adverse weather, high winds can accelerate the process by getting behind
2 the gutter and forcing it completely away from the building.

3
4 The utilization of gutter hangers is the most common way in which installers
5 have tried to improve the integrity and life of gutter systems. In this application, a
6 modified spacer is used, shaped like a flat plate, with both ends mined upward. One
7 end of this spacer is inserted under the lip of the front face of the gutter, while the
8 second end, with a pre-punched nail hole, is placed against the rear face of the
9 gutter. A nail or screw is then inserted through the nail hole, through the rear face of
10 the gutter, and into the building wall. A variation of this method includes placing the
11 second end of the spacer over the top of the rear face of the gutter. The spacer is
12 then nailed directly into the roof decking of the building or to the face of the wall,
13 under any existing shingles. These methods of installation eliminate the unsightly
14 appearance previously created by installing the nail or screw through the front face
15 of the gutter. However, these hangers do not prevent the collection of water behind
16 the gutter, nor relieve the moment created by the weight of the water pooling
17 outwardly within the gutter.

18 A further problem occurs with different types of construction. The building
19 may or may not include an additional small piece of fascia board under the eaves
20 which is not as long as the gutter. If a piece of fascia board does exist under the
21 eaves and the gutter system is in turn nailed to it, over time the portion of the gutter

1 which extends below the fascia board will sag towards the building. This sagging
2 can eventually cause leaks. Where no additional fascia board exists, this type of
3 sagging is not seen.

4 Because of the problems which have been associated with traditional gutter
5 systems and methods of installation, there is a need for a strong, sturdy gutter
6 system. In addition, this system should be adaptable to different types of
7 construction that may or may not incorporate an additional piece of fascia board. It
8 is desirable that installation be easy, while ensuring that any interlocking aspect of
9 the system is not compromised due to the primary construction of the building nor
10 during periods of high winds or other adverse weather conditions. Preferably, this
11 system should redistribute the water and other material captured within the gutter,
12 such that all moments that could result are negated. Furthermore, the system
13 should prevent any sagging due to construction that incorporates an additional piece
14 of fascia board.

15 16 **SUMMARY OF THE INVENTION**

17 The present invention embodies a gutter retaining system for affixing a rain
18 gutter under the eaves of a building having a pitched roof. The gutter retaining system
19 incorporates a gutter clip which is used in conjunction with a rain gutter and a retaining
20 member. The gutter clip has an L-portion and a back portion. The back portion
21 includes an upper u-portion with a hanger which is used to slip the gutter clip over the

1 gutter. The back portion of the gutter clip also includes a nib end with a locking tip.
2 Nib end extends slightly beyond the dimensions of the hanger and can fit within a
3 hooked portion of the retaining member. This allows the locking tip to secure the gutter
4 clip and gutter in place along the eaves of the building.

5 The L-portion of the gutter clip is useful on buildings which incorporate an
6 additional piece of fascia board along the eaves in the construction. The L-portion fits
7 between the gutter and the wall of the building, incorporating a base extension which
8 can be fit against the building. In addition, the gutter clip is scored between the back
9 portion and the L-portion which allows these two portions to be separated when
10 desired, such as in the situation where no additional piece of fascia board is found
11 along the eaves of the building. Where the L-portion is removed from the back portion,
12 the L-portion would be discarded. In this situation, the vertical portion of the back
13 portion presses against the building.

14 **BRIEF DESCRIPTION OF THE DRAWINGS**

15 Fig. 1 is a front view of the gutter clip component of the preferred embodiment
16 of the present invention.

17 Fig. 2 is a side view of the gutter clip component of the preferred embodiment of
18 the present invention.

19 Fig. 3 is a cross-section view of the gutter clip component of the preferred
20 embodiment of the present invention shown overlapping a gutter.

21 Fig. 4A is a perspective view of the gutter clip component of the preferred

1 embodiment of the present invention with the L-portion removed.

2 Fig. 4B is a perspective view of the gutter clip component of the preferred
3 embodiment of the present invention retaining the L-portion.

4 Fig. 5 is a cross-section view of the gutter clip component of the preferred
5 embodiment of the present invention retaining the L-portion as shown with a gutter and
6 retaining member against a building.

7 Fig. 6 is a cross-section view of the gutter clip component of the preferred
8 embodiment of the present invention without the L-portion with a gutter and retaining
9 member against a building.

10 Fig. 7 is a cross-section view of the retaining member of the second embodiment
11 of the present invention.

12 Fig. 8 is a cross-section view of the gutter clip component of the preferred
13 embodiment of the present invention without the L-portion with a gutter and the
14 retaining member of the second embodiment against a building incorporating metal
15 flashing.

16 17 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

18 In Figs. 1 and 2 a front view and side view, respectively, of the gutter clip
19 102 of the preferred embodiment of the present invention are shown. Gutter clip
20 102 is essentially L-shaped incorporating an L-portion 158, a back portion 160, a
21 front face 120 and back face 118. Beginning at the back portion 160 is locking tip

1 134 which is contiguous into nib end 106. Nib end 106 transitions into hanger
2 108 via junction 136. Hanger 108 is contiguous with upper u-portion 110. Upper
3 u-portion 110 continues into vertical portion 162. Vertical portion 162 transitions
4 into L-portion 158 which begins at first elbow 112. Scoring can be used on first
5 elbow 112 to allow L-portion 158 to be easily separated from back portion 160.
6 First elbow 112 turns into base 114 which proceeds into second elbow 116.
7 Second elbow 116 turns up into base extension 130. Base extension 130 is
8 contiguous with lower u-portion 132, lower u-portion 132 being completed at end
9 138.

10 Fig. 3 shows a cross section view of the gutter clip 102 of the preferred
11 embodiment of the present invention overlapping a gutter 104. Gutter clip 102,
12 gutter 104, and retaining member 122 make up a gutter retaining system 100.
13 Gutter clip 102 is as mentioned essentially L-shaped incorporating an L-portion 158
14 (See Fig. 2), a back portion 160 (See Fig. 2), a front face 120 and back face 118.
15 Beginning at the back portion 160 (See Fig. 2) is locking tip 134 which is adjacent
16 nib end 106. Nib end 106 transitions into hanger 108 via junction 136. Hanger
17 108 continues into upper u-portion 110. The portion of gutter clip 102 from
18 locking tip 134 to upper u-portion 110 fits inside the back wall 124 of gutter 104.
19 Upper u-portion 110 can be crimped to secure gutter clip 102 snugly to gutter 104.
20 Back face 118 fits against the outside of the back wall 124 of gutter 104 from
21 upper u-portion 110 to first elbow 112. Upper u-portion 110 of gutter clip 102

1 continues into vertical portion 162. Vertical portion 162 transitions into L-portion
2 158 (See Fig. 2) which begins at first elbow 112. First elbow 112 turns into base
3 114 which proceeds into second elbow 116. Second elbow 116 turns up into base
4 extension 130. Base extension 130 is contiguous with lower u-portion 132, lower
5 u-portion 132 being completed at end 138. The remainder of gutter 104 includes a
6 gutter channel 156, front wall 126 and lip 128.

7 Fig. 4A is a perspective view of the gutter clip 102 of the preferred
8 embodiment of the present invention with the L-portion 158 (See Fig. 2) removed.
9 Beginning at the back portion 160 (See Fig. 2) is locking tip 134 (See Fig. 3) which
10 is contiguous into nib end 106 (See Fig. 3). Nib end 106 (See Fig. 3) transitions
11 into hanger 108 (See Fig. 3) via junction 136 (See Fig. 3). Hanger 108 (See Fig.
12 3) is contiguous with upper u-portion 110. Upper u-portion 110 can be crimped to
13 secure gutter clip 102 snugly to gutter 104. Back face 118 (See Fig. 3) fits against
14 the outside of the back wall 124 of gutter 104. Upper u-portion 110 of gutter clip
15 102 continues into vertical portion 162.

16 In Fig. 4B a perspective view of the gutter clip 102 of the preferred
17 embodiment of the present invention retaining the L-portion 158 (See Fig. 2) is
18 shown. Beginning at the back portion 160 (See Fig. 2) is locking tip 134 (See Fig.
19 3) which is contiguous into nib end 106 (See Fig. 3). Nib end 106 (See Fig. 3)
20 transitions into hanger 108 (See Fig. 3) via junction 136 (See Fig. 3). Hanger 108
21 (See Fig. 3) is contiguous with upper u-portion 110. The portion of gutter clip 102

1 from locking tip 134 (See Fig. 3) to upper u-portion 110 fits inside the back wall
2 124 of gutter 104. Upper u-portion 110 can be crimped to secure gutter clip 102
3 snugly to gutter 104. Back face 118 (See Fig. 3) fits against the outside of the back
4 wall 124 of gutter 104 from upper u-portion 110 to first elbow 112. Upper u-
5 portion 110 of gutter clip 102 continues into vertical portion 162. Vertical portion
6 162 transitions into L-portion 158 (See Fig. 3) which begins at first elbow 112.
7 First elbow 112 turns into base 114 which proceeds into second elbow 116.
8 Second elbow 116 turns up into base extension 130. Base extension 130 is
9 contiguous with lower u-portion 132, lower u-portion 132 being completed at end
10 138.

11 Fig. 5 is a cross-section view of the gutter clip 102 of Fig. 4B of the preferred
12 embodiment of the present invention retaining the L-portion 158 (See Fig. 2) as
13 shown with a gutter 104 and retaining member 122 against a building 150.
14 Beginning at the back portion 160 (See Fig. 2) is locking tip 134 which is
15 contiguous into nib end 106. Nib end 106 transitions into hanger 108 via junction
16 136. Hanger 108 is contiguous with upper u-portion 110. The portion of gutter
17 clip 102 from locking tip 134 to upper u-portion 110 fits inside the back wall 124
18 of gutter 104. Upper u-portion 110 can be crimped to secure gutter clip 102
19 snugly to gutter 104.

20 Front face 120 fits against mounting lip 146 of retaining member 122.
21 Mounting lip 146 ends in horizontal section 142. One end of horizontal section

1 142 proceeds under the roof 152 tiles 164 while the remaining end drops into a
2 return 140. Return 140 ends in hooked portion 144. Nib end 106 extends slightly
3 beyond the dimensions of hanger 108 and therefore can fit within hooked portion
4 144 to allow locking tip 134 to secure gutter clip 102 and gutter 104 in place. The
5 back of mounting lip 146 presses against a fascia board 148 on building 150. The
6 thickness of L-portion 158 (See Fig. 2) is approximately equal to the thickness of
7 fascia board 148 to allow for base extension 130 to fit properly against building
8 150. In buildings 150 which incorporate this fascia board 148, L-portion 158 (See
9 Fig. 2) provides stability to gutter 104 to prevent gutter 104 from sagging towards
10 building 150. The vertical portion 162 of gutter clip 102 as well as the upper u-
11 portion 110, hanger 108, nib end 106, junction 136 and locking tip 134 of gutter
12 clip 102 are positioned under the eaves 154 of building 150. A portion of
13 horizontal section 142, return 140 and hooked portion 144 of retaining member
14 122 are positioned under the eaves 154 of building 150 as is gutter 104.

15 Back face 118 (See Fig. 3) fits against the outside of the back wall 124 of
16 gutter 104 from upper u-portion 110 to first elbow 112. Upper u-portion 110 of
17 gutter clip 102 continues into vertical portion 162. Vertical portion 162 transitions
18 into L-portion 158 (See Fig. 2) which begins at first elbow 112. First elbow 112
19 turns into base 114 which proceeds into second elbow 116. Second elbow 116
20 turns up into base extension 130. Base extension 130 is designed to fit against
21 building 150. Base extension 130 is contiguous with lower u-portion 132, lower u-

1 portion 132 being completed at end 138. The remainder of gutter 104 includes a
2 gutter channel 156, front wall 126 and lip 128.

3 Fig. 6 shows a cross-section view of the gutter clip 102 of Fig. 4A of the
4 preferred embodiment of the present invention without the L-portion 158 (See Fig.
5 2) with a gutter 104 and retaining member 122 against a building 150. Beginning
6 at the back portion 160 (See Fig. 2) is locking tip 134 which is contiguous into nib
7 end 106. Nib end 106 transitions into hanger 108 via junction 136. Hanger 108
8 is contiguous with upper u-portion 110. The portion of gutter clip 102 from locking
9 tip 134 to upper u-portion 110 fits inside the back wall 124 of gutter 104. Upper
10 u-portion 110 can be crimped to secure gutter clip 102 snugly to gutter 104.

11 Front face 120 fits against mounting lip 146 of retaining member 122.
12 Mounting lip 146 ends in horizontal section 142. One end of horizontal section
13 142 proceeds under the roof 152 tiles 164 while the remaining end drops into a
14 return 140. Return 140 ends in hooked portion 144. Nib end 106 extends slightly
15 beyond the dimensions of hanger 108 and therefore can fit within hooked portion
16 144 to allow locking tip 134 to secure gutter clip 102 and gutter 104 securely in
17 place. The back of mounting lip 146 presses against building 150. The vertical
18 portion 162 of gutter clip 102 as well as the upper u-portion 110, hanger 108, nib
19 end 106, junction 136 and locking tip 134 of gutter clip 102 are positioned under
20 the eaves 154 of building 150. A portion of horizontal section 142, return 140 and
21 hooked portion 144 of retaining member 122 are positioned under the eaves 154 of

1 building 150 as is gutter 104. Back face 118 (See Fig. 3) fits against the outside of
2 the back wall 124 of gutter 104. Upper u-portion 110 of gutter clip 102 continues
3 into vertical portion 162. The remainder of gutter 104 includes a gutter channel
4 156, front wall 126 and lip 128.

5 Fig. 7 is a cross-section view of the retaining member 122a of the second
6 embodiment of the present invention. Mounting lip 146 is provided which is
7 contiguous with upper vertical section 206. At the junction between mounting lip 146
8 and upper vertical section 206 is one end of horizontal section 142. The remainder of
9 horizontal section 142 drops into return. Return 140 ends in hooked portion 144.

10 Fig. 8 is a cross-section view of the gutter clip component 102 (See Fig. 4A)
11 of the preferred embodiment of the present invention without the L-portion 158 (See
12 Fig. 2) with a gutter 104 and the retaining member 122a of the second
13 embodiment against a building 150 incorporating metal flashing 200 held in place
14 with nails 202. Beginning at the back portion 160 (See Fig. 2) is locking tip 134
15 (See Fig. 5) which is contiguous into nib end 106. Nib end 106 transitions into
16 hanger 108 via junction 136. Hanger 108 is contiguous with upper u-portion 110.
17 The portion of gutter clip 102 from locking tip 134 (See Fig. 5) to upper u-portion
18 110 fits inside the back wall 124 of gutter 104. Upper u-portion 110 can be
19 crimped to secure gutter clip 102 snugly to gutter 104.

20 Front face 120 (See Fig. 2) fits against mounting lip 146 of retaining
21 member 122a. Mounting lip 146 is contiguous with upper vertical section 206.

1 Upper vertical section 206 is designed to extend in front of or behind metal flashing
2 200. In addition, upper vertical section 206 can be used when no metal flashing
3 200 is provided. At the junction between mounting lip 146 and upper vertical
4 section 206 is one end of horizontal section 142. The remainder of horizontal
5 section 142 drops into return 140. Return 140 ends in hooked portion 144. Nib
6 end 106 extends slightly beyond the dimensions of hanger 108 and therefore can fit
7 within hooked portion 144 to allow locking tip 134 (See Fig. 5) to secure gutter clip
8 102 and gutter 104 securely in place. The back of mounting lip 146 presses
9 against building 150. The vertical portion 162 (See Fig. 4A) of gutter clip 102 as
10 well as the upper u-portion 110, hanger 108, nib end 106, junction 136 and
11 locking tip 134 (See Fig. 5) of gutter clip 102 are positioned under the eaves 154 of
12 building 150. A portion of horizontal section 142, return 140 and hooked portion
13 144 of retaining member 122 are positioned under the eaves 154 of building 150
14 as is gutter 104. Back face 118 (See Fig. 3) fits against the outside of the back
15 wall 124 of gutter 104. Upper u-portion 110 of gutter clip 102 continues into
16 vertical portion 162 (See Fig. 4A). The remainder of gutter 104 includes a gutter
17 channel 156, front wall 126 and lip 128.

18 The second embodiment can also incorporate the gutter clip 102 having the
19 L-portion 158 as shown in Fig. 2. Beginning at the back portion 160 (See Fig. 2) is
20 locking tip 134 which is contiguous into nib end 106. Nib end 106 transitions into
21 hanger 108 via junction 136. Hanger 108 is contiguous with upper u-portion 110.

1 The portion of gutter clip 102 from locking tip 134 (See Fig. 5) to upper u-portion
2 110 fits inside the back wall 124 of gutter 104. Upper u-portion 110 can be
3 crimped to secure gutter clip 102 snugly to gutter 104.

4 Front face 120 (See Fig. 2) fits against mounting lip 146 of retaining
5 member 122. Mounting lip 146 is contiguous with upper vertical section 206. At
6 the junction between mounting lip 146 and upper vertical section 206 is one end
7 of horizontal section 142. The remainder of horizontal section 142 drops into return
8 140. Return 140 ends in hooked portion 144. Nib end 106 extends slightly
9 beyond the dimensions of hanger 108 and therefore can fit within hooked portion
10 144 to allow locking tip 134 (See Fig. 5) to secure gutter clip 102 and gutter 104
11 in place. The back of mounting lip 146 presses against a building 150. The
12 thickness of L-portion 158 (See Fig. 2) allows for base extension 130 to fit properly
13 against building 150. L-portion 158 (See Fig. 2) provides stability to gutter 104 to
14 prevent gutter 104 from sagging towards building 150. The vertical portion 162
15 (See Fig. 2) of gutter clip 102 as well as the upper u-portion 110, hanger 108, nib
16 end 106, junction 136 and locking tip 134 (See Fig. 5) of gutter clip 102 are
17 positioned adjacent building 150. A portion of horizontal section 142, return 140
18 and hooked portion 144 of retaining member 122 are adjacent building 150 as is
19 gutter 104.

20 Back face 118 (See Fig. 3) fits against the outside of the back wall 124 of
21 gutter 104 from upper u-portion 110 to first elbow 112 (See Fig. 3). Upper u-

1 portion 110 of gutter clip 102 continues into vertical portion 162 (See Fig. 2).
2 Vertical portion 162 (See Fig. 2) transitions into L-portion 158 (See Fig. 2) which
3 begins at first elbow 112 (See Fig. 3). First elbow 112 (See Fig. 3) turns into base
4 114 (See Fig. 3) which proceeds into second elbow 116 (See Fig. 3). Second
5 elbow 116 (See Fig. 3) turns up into base extension 130 (See Fig. 3). Base
6 extension 130 (See Fig. 3) is designed to fit against building 150. Base extension
7 130 (See Fig. 3) is contiguous with lower u-portion 132 (See Fig. 3), lower u-
8 portion 132 (See Fig. 3) being completed at end 138 (See Fig. 3). The remainder
9 of gutter 104 includes a gutter channel 156, front wall 126 and lip 128.

10 Although the invention has been described with reference to specific
11 embodiments, this description is not meant to be construed in a limited sense.
12 Various modifications of the disclosed embodiments, as well as alternative
13 embodiments of the inventions will become apparent to persons skilled in the art
14 upon the reference to the description of the invention. It is, therefore, contemplated
15 that the appended claims will cover such modifications that fall within the scope of
16 the invention.